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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,382

04/18/2006

Ruihua Hu

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02/24/2009

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EXAMINER

PHAM, MINH CHAU THI

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

02/24/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,382	<b>Applicant(s)</b> HU, RUIHUA	
	<b>Examiner</b> MINH-CHAU T. PHAM	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maus (6,534,021 B1), in view of Elbers (4,537,812).

Maus discloses a fluid filter (see 1 in Fig. 4) with a filter assembly (10) comprising a plurality of corrugated filtering plates (12) and a plurality of flat filtering plates (see 13 in Fig. 3) alternated into the corrugated filtering plates (see 10 in Fig. 3) to overlap with corrugated filtering plates with a Z shaped manner so as to form a filter stack (see 1 in Fig. 3) wherein each of the corrugated filtering plates is reserved with two side plain edges and remaining portion of the corrugated filter plate is prepared corrugated ridge, wherein each of the corrugated filter plates is respectively welded onto a pair of neighboring flat filtering plates at opposed edges (see col. 13, line 63 through col. 14, line 2) such that two sides of the filter stack are enclosed with Z shaped ending alternatively applied as fluid inlet and outlet in practice (see Figs. 1-3, col. 10, lines 41-63). Claims 10-16 differ from the disclosure of Maus in that the filter comprises an outer casing and the specific height and crest interval configuration of the filter stack. Elbers discloses a fluid filter (see 10 in Fig. 1) comprising an outer casing (12, 14, 16, 18), a filter assembly (10) received within the outer casing (12, 14, 16, 18) comprising a

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plurality of corrugated filtering plates and a plurality of flat filtering plates alternated into the corrugated filtering plates to overlap with corrugated filtering plates to form a filter stack (see 10 in Fig. 1) wherein each of the corrugated filtering plates is reserved with two side plain edges and remaining portion of the corrugated filter plate is prepared corrugated ridge, wherein each of the corrugated filter plates is respectively welded onto a pair of neighboring flat filtering plates at opposed edges such that two sides of the filter stack are enclosed with ending alternatively applied as fluid inlet and outlet in practice. Elbers further discloses the height or amplitude of the filtering formations is in order of 0.03 to 0.04 inches and the crest interval not more than about 10 microinches, preferably in the range of 4 to 8 microinches (see Abstract, col. 2, lines 61-68, col. 3, lines 27-46). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the specific dimension of height and crest interval as taught by Elbers in the filtering apparatus of Maus to promote planar configuration resulting in lower pressure drop across the filter media while maintaining the same efficiency and flow rate.

### ***Response to Amendment***

Applicant's arguments filed on December 12, 2008 have been fully considered but they are not persuasive.

Applicant argues that the cited prior art "Maus does not disclose the corrugated filtering plates formed into a filter stack with height of each layer in the range between 2-10 mm and a crest interval between the range 4-20 mm". The Examiner still maintains Maus as the primary reference under the 103(a) rejections of the claims to show:

Maus discloses a fluid filter (see 1 in Fig. 4) with a filter assembly (10) comprising a plurality of corrugated filtering plates (12) and a plurality of flat filtering plates (see 13 in Fig. 3) alternated into the corrugated filtering plates (see 10 in Fig. 3) to overlap with corrugated filtering plates with a Z shaped manner so as to form a filter stack (see 1 in Fig. 3) wherein each of the corrugated filtering plates is reserved with two side plain edges and remaining portion of the corrugated filter plate is prepared corrugated ridge, wherein each of the corrugated filter plates is respectively welded onto a pair of neighboring flat filtering plates at opposed edges (see col. 13, line 63 through col. 14, line 2) such that two sides of the filter stack are enclosed with Z shaped ending alternatively applied as fluid inlet and outlet in practice (see Figs. 1-3, col. 10, lines 41-63), as claimed.

The Examiner newly introduces Elbers (4,537,812) as the secondary reference in combination with Maus under the 103(a) rejection to show:

Elbers discloses a fluid filter (see 10 in Fig. 1) comprising an outer casing (12, 14, 16, 18), a filter assembly (10) received within the outer casing (12, 14, 16, 18) comprising a plurality of corrugated filtering plates and a plurality of flat filtering plates alternated into the corrugated filtering plates to overlap with corrugated filtering plates to form a filter stack (see 10 in Fig. 1) wherein each of the corrugated filtering plates is reserved with two side plain edges and remaining portion of the corrugated filter plate is prepared corrugated ridge, wherein each of the corrugated filter plates is respectively welded onto a pair of neighboring flat filtering plates at opposed edges such that two sides of the filter stack are enclosed with ending alternatively applied as fluid inlet and

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outlet in practice, as claimed. Elbers further discloses the height or amplitude of the filtering formations is in order of 0.03 to 0.04 inches and the crest interval not more than about 10 microinches, preferably in the range of 4 to 8 microinches (see Abstract, col. 2, lines 61-68, col. 3, lines 27-46), as claimed. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the specific dimension of height and crest interval as taught by Elbers in the filtering apparatus of Maus to promote planar configuration resulting in lower pressure drop across the filter media while maintaining the same efficiency and flow rate.

Applicant's arguments with respect to claims 10-16 have been thoroughly considered but are moot in view of the new ground(s) of rejection, as discussed above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH-CHAU T. PHAM whose telephone number is (571)272-1163. The examiner can normally be reached on Mon/Tues/Thur/Fri 7:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Minh-Chau T. Pham/  
Examiner, Art Unit 1797  
February 17, 2009